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one of the Trustees of
the University of Pennsylvania.

SIR,

ONE of the gentlemen of the board of Trustees, obligingly shewed me a communication from the medical faculty of your University, relative to the object presented to your notice in my "address" to you of the 2d of January last. He stated to me that he did so, for the purpose of soliciting that information on the subject, of which he stood in need, in order to be fully prepared on all the merits and bearings of the case now pending before your board. Supposing it not unlikely that other members of your body might likewise be glad to receive further information on the points embraced in the communication of the Faculty, I have thought it expedient and useful to comprise all the facts and arguments which it is in my power to present, in the form of a circular to each gentleman of the board.

The communication from the Faculty to the former committee, in 1820, to which they refer in the one now before the Trustees, I have not yet seen; but they state that the present document contains a repetition of all the arguments and reasons urged by them in the former paper, (of 1820) against introducing the professorship of Botany into the Medical Faculty. This being the case, I presume any facts I may have it in my power to state, invalidating the grounds on which their opposition is assumed in the present document, will be considered as bearing with equal weight on the first communication; in other words, on *all* they have to advance against the views I have presented for adoption to the Trustees. I will proceed to consider the arguments of the Faculty in the order of their replies to the queries of the committee.

1st,—They state, that "Botany is not of material importance in a *thorough* medical education, because in the limits within which it must necessarily be taught, it has no greater connexion with the science of medicine than mineralogy and zoology, neither of which has ever been deemed essential to the physician, &c. &c." In answer to this opinion, I need only observe, that I have laid before you in my printed memorial of 1820, the letters of forty-two medical men of this city, New York and Boston; all of whom state positively and unqualifiedly, that it is not only useful and

important, but *absolutely necessary* to an elementary medical education. Among these gentlemen you will find the names of Hosack, Samuel L. Mitchell, Bigelow, Channing, (professors in New York and Boston;) Hewson, Hartshorn, Saml. P. Griffiths, Otto, Rush, Parrish, Colhoun, Moore, Shoemaker, &c. &c. of this city. The opinion of six,* therefore, is opposed to that of forty-two physicians of the highest respectability in this country—to which I add also the fact, that the physicians of Charleston, S. C. who have lately established a Medical School, evince by their making a Chair of Botany in their Faculty, and two courses necessary to a medical degree,† that the medical opinion of that section of the United States, is likewise to be opposed to that of the Medical Faculty of this University.

2d,—They state that “Botany, in the manner in which it *must necessarily* be taught, is merely a science by which one who pursues it can distinguish the name and botanical characters of plants, and thereby locate them in any system he may choose to adopt, &c. &c.” To this I reply: that *the fact is not so*; and this remark could not have been made by any person or persons acquainted with the principles and objects of the science of Botany; while it is, perhaps, excusable in those professing a belief in the inutility of the science, and a total unacquaintance with it, as is the case with the gentlemen from whom the remark emanates. The very definition of Botany, is, that it is the science which treats of the natural history, systematic arrangement, the medicinal virtues and economical uses of plants;—As a teacher of the science for nine years, I must be presumed to be acquainted with its objects, and I refer to my own syllabus, and that of Dr. Hosack, formerly professor of Botany in the New York school, to shew, that Botany *is not restricted* to any such narrow limits. The idea that it is so, is entirely novel, and peculiar to the gentlemen who have advanced it. Withering’s English Botany, is a systematic work of the highest character, and in it, the medicinal virtues and economical uses are dwelt on. The properties of plants are also detailed in Curtis’s *Flora Londonensis*, the *Flora Batava*, and numerous other works of a similar kind. While Woodvilles’ Botany, consisting of four quarto volumes, is dedicated wholly to the description and medicinal properties of the plants it embraces, and the *Flore Medicale* of Chaumeton and Chamberet, consisting of ninety fasciculi, is devoted to the same purpose.

3d,—They state that “Botany gives not the smallest insight into

* See their printed advertisement in my address of the 2d of January, and their late catalogue, to be laid before the Trustees on the 5th of April next.

† I am authorized by the professor of Midwifery to state, that he always has considered, and ever will consider, a Medical education *incomplete* without a knowledge of Botany; and that his *individual opinion* in favour of rendering it requisite for a degree, in the Faculty as a body, was of course over-ruled by the *majority*.

the medicinal properties of plants—this must be the result of experiments, cautiously and repeatedly made.” If this be true, how does it happen, that for all that is known at the present day, of the *Materia Medica* of North America, we are wholly indebted to Botanists alone?—yet this is the fact, and I challenge a denial of it. Shoepf, Barton, Cutler, Bigelow, M'Bride, Mitchell, &c. &c. are the writers who have made us acquainted with our own medicines; and they are all Botanists. It is emphatically remarked, even by Dr. Chapman, in the preface of his *Elements of Therapeutics*, that the American *Materia Medica* was first brought to light by our Botanists; among whom he truly states, the late professor Barton and his pupils, were distinguished for the value of their accessions. The present professor of *Materia Medica* likewise tacitly acknowledges this fact in his *Dispensatory*, by quoting our Botanists as authority for all that has been done on the American *Materia Medica*, and by embodying in that work Mr. Nuttall's and my own account of the Jalap. Do not these facts show undeniably, that Botany not only does lead to ascertaining the medicinal properties of plants; and that their botanical history is a necessary appendage to the account of their medicinal properties—but that no certain information, nor any sure dependance can be had without it. A single fact may be sufficient to bring this point familiarly before you. The leaves of the common parsley and those of the hemlock, (one of the deadliest poisons of the vegetable *materia medica*) so much resemble each other, that none but one acquainted with their botanical characters, can safely pronounce on their difference, when circumstances have thrown them together. I can further assure you of a fact which I have published, and constantly mentioned in my lectures; that there are two species of goosefoot so closely resembling each other, (one of which has no medicinal properties, and the other yields a powerful and well known medicine, the famous worm-seed oil) that in this and other cities, the spurious one has been ignorantly substituted and used, for the real medicine acknowledged to be very valuable. Even now, the roots of a spurious *calumba* are mixed with and adulterate the real *calumba* of medicine: and it requires botanical knowledge of the characters of the two roots, to avoid the imposition. Numerous and daily instances occur of a like kind, but these are mentioned by way of example.

It is stated, that many of the articles of the *Materia Medica*, have been handed down from the time of Hippocrates, long before Botany existed as a science. This is the first time I have ever heard such an idea advanced. So far from this being the case, the articles handed down, are, compared to those embraced by the present improved state of the *Materia Medica*, as one to thirty, perhaps as one to fifty; and even in regard to the few that have been transmitted, there is great obscurity and uncertainty in consequence of a want, in that age, of the science of Botany.

This I may show by a single example to be the case, in relation to an article of the *Materia Medica*, which has elicited the researches of the gentleman who now teaches *Materia Medica* in

this University, in his efforts to ascertain whether the *colchicum autumnale* which now-a-days cures gout, is the *Herniaria* of the ancients. His labour is all vain, and the labour of all men will be vain, to identify this, or any other vegetable article of *Materia Medica* with the medicines of that day, simply for the want of the accuracy of description and discrimination which does not exist in relation to the medicines of the ancients, because Botany did not then exist.

As to the encroachment of the chair of Botany, in the event of the teacher extending its subjects beyond mere classification of plants, interfering with *Materia Medica*, Pharmacy, and the practice of Physick, I would observe: that the teacher of *Materia Medica* never did monopolize, nor in any school was he ever expected to monopolize the collateral branches of medical science, which furnish him with his materials. Was it admitted to be right that he should do so, the chemical chair would be obnoxious to the same objection the Faculty has advanced to the chair of Botany. As well might it be urged, when the professor of Chemistry should teach the natural history of quicksilver, and show the means of obtaining calomel, corrosive sublimate, red precipitate, and the other preparations from this metal, that he encroached on the chair of *Materia Medica*, from which the student is to learn the properties, uses, and doses, of these preparations; or on the chair of the practice whence he is to learn the diseases to which they are applicable, as to say that the professor of Botany would encroach on those chairs, when he should descant on the natural history of the Peruvian Barks, shew the different characters of the numerous trees which yield them, point out the means of detecting impositions and adulterations by the botanical characters of the cuticle and cortex—or when he shewed the different plants which yield the *ipêcacuanha*, detailed their natural history, pointed out the characters of these plants, their roots, &c. and the means also in this instance of detecting impositions and adulterations. When he should instil this obviously useful instruction into the mind of the student, he would no more exceed the legitimate bounds of his chair, nor encroach on the chairs of *Materia Medica* or the practice of Physick, than would the professor of Chemistry in the instance above cited. Indeed I am sure no medical man ever before heard of the possibility of the Profr. of Botany coming in contact with that of the practice of physick. He might as well be said to encroach on the chair of Anatomy when he lectured on the anatomy of plants—or on the chair of Midwifery, when he should treat of vegetable impregnation and semination. The course I have hinted at, as pertaining properly to the chair of Botany, is that which is accredited in that chair, in all the eminent medical schools of Europe. Finally, it would be quite as proper to speak of the interference of the carpenter, the mason, and the plaisterer, in erecting a building, as to suggest, as objectionable to the aid of a particular branch of medicine, its interference with any other branch. The science of medicine is a whole, of which the divisions into separate

branches constitute its parts; each department has its separate and distinct object in accomplishing the education of a physician, as the carpenter, the mason, and the plaisterer have, in erecting an edifice; each teacher, however, must occasionally come in contact with his colleague, and even depend often on his assistance, just as the artificers before-mentioned sometimes work together and assist each other, for the ultimate object in view.

I take the liberty here to mention two facts recently stated to me with laudable candour, by the professor of *Materia Medica* of this Un. to show how necessary Botany is to the right understanding of that branch. He informed me that he had descanted (and I think he said lectured) on a root as the squill, having bought it as such, which he subsequently planted, and when it grew up and flowered, he had to learn from Mr. Nuttall that it was not squill at all, but the root of an entirely distinct plant, and possessing no medicinal virtues whatever. Had the professor shewn that root previously to treating on it, to a botanist, he could in an instant have been told that it was not the squill, because it wanted the botanical characters identifying that root. He further stated to me, that he had procured the colchicum for his lectures, and this turned out when it grew in his garden, to be the *Heuchera Americana* or Alum root, of the *Materia Medica* of the United States: a plant having no resemblance whatever, either in its root, foliage, flower or properties to the colchicum.

I shall dismiss this part of the subject by the simple remark, that the therapeutics and other legitimate objects of the chair of *Materia Medica* and Pharmacy, afford ample scope for its professor, without his apprehending encroachment from Botany if the Trustees decide to introduce it.

4th,—The faculty state that “mineralogy and zoology, contribute most important articles to the *Materia Medica*, the former in great abundance; and that the same arguments which apply to the incorporation of Botany with the medical faculty, will therefore apply to them; but that such an union has no where been attempted.” To this objection I reply, that all the medicinal subjects of mineralogy are the legitimate objects of the chair of chemistry. The professor of that branch who should lecture only on the power of steam, the power and influence of galvanism, the composition of the atmosphere, &c. &c. and who should neglect to instruct his class in the history of mercury and the manner in which its numerous preparations are chemically produced; the medicinal preparations of nitre, sulphur, arsenic, zinc, copper, silver, gold, &c. &c. would reprehensibly neglect his duty and the medical objects of his chair. Mineralogy is therefore, in this medical school, as in all others of the world, provided for; and hence it is, that as medical chemistry constitutes an essential branch in all medical schools, and has been shown to embrace the mineralogical part of *Materia Medica*, a chair of mineralogy incorporated with the medical faculty, would be like a fifth wheel to a carriage, useless and in the way. Before I prove that the zoological objects of *Materia Medica*, do not claim to be incorporated as a separate professorship

with equal force as Botany, I will show in detail, the relative porportion of the articles of *Materia Medica* from the vegetable, mineral and animal kingdoms.

The Pharmacopia of the United States contains in its two lists 292 simple medicinal articles—of these

236 are Vegetable.—*Botany*.

44 — Mineral.—*Mineralogy*.

5 — Animal.

2 — From the sea.

5 — Insect tribe.—*Entomology*.

} *Zoology*.

The *Materia Medica* of Cullen (a standard work) contains under different heads or classes, 480 articles and compounds—of these

310 are Vegetable.—*Botany*.

79 — Mineral.—*Mineralogy*.

89 — Animal

2 — Insect tribe.—*Entomology*.

} *Zoology*.

Dyckman's edition of the Edinburg Dispensatory contains under its various heads, 2088 articles and compounds—of these

1372 are Vegetable.—*Botany*.

619 — Mineral.—*Mineralogy*.

41 — Animal.

17 — From the sea.

39 — Insect tribe.—*Entomology*.

} *Zoology*.

Thatcher's Dispensatory, contains 1037 articles and compounds under its various heads—of these

668 are Vegetable.—*Botany*.

332 — Mineral.—*Mineralogy*.

15 — Animal

8 — From the sea

14 — Insect tribe.—*Entomology*.

} *Zoology*.

Eberles' Elements of *Materia Medica*, and Therapeutics, contains under its various heads, 342 articles and compounds—of these

211 are Vegetable.—*Botany*.

120 — Mineral.—*Mineralogy*.

6 — Animal.

5 — Insect tribe.—*Entomology*.

} *Zoology*.

Chapman's Elements of *Materia Medica*, and Therapeutics contains under its different heads, 198 articles and compounds—of these

108 are Vegetable.—*Botany*.

81 — Mineral.—*Mineralogy*.

3 — Animal.

6 — Insect tribe.—*Entomology*.

} *Zoology*.

From these statements it is evident, that the medicinal objects of zoology, bear not the slightest comparisou in numbers with those of the vegetable kingdom, and in fact are so few, that all that it is necessary to say of them, can be told by the Professor of *Materia Medica*. To which is to be added this fact, that the articles themselves received into the *Materia Medica*, have no connexion with the subjects from which they are obtained. For example: to use hogs-lard, suet, bees wax, isinglass, musk castor, ammonia,

or spermaceti, it is of no real importance in practice, to know the history of the Hog, the Sheep, the Bee, the particular species of Sturgeon, the Musk-Deer, the Beaver, the Stag and the Whale; because, not only are these subjects from zoology, (which are used in medicine) themselves, the mere secretions of the animals, and parts of their horns, &c. but neither the animals themselves, nor their products could, if the case was otherwise, ever be mistaken for, or confounded with each other, even by the most ignorant. Neither is it necessary in order to use Spanish flies, honey, potatoe flies, or leeches, to be acquainted with the natural history and classification of the insects and animal in question, since they cannot be confounded with each other; nor can any mistake in practice possibly arise from the want of this knowledge. But the case is widely different in the vegetable kingdom. Here it is *absolutely necessary* in order to identify the mass of vegetable medicines that the physician shall be able to avoid mistakes and confusion and the dangerous substitution of one article for another, by possessing a knowledge of the botanical discriminative characters; as in the instances already adduced of the squill and colchicum and black alder as well as numerous others which might be mentioned. In truth the practice of every physician who will be candid enough to acknowledge the fact, affords him too frequent opportunities to regret his want of Botanical knowledge; without it no physician can safely permit, or prescribe the use of, the numerous ptisans and infusions which from time immemorial to the present day, have been, and always will be used by the sick, as grateful and adventitious means of cure in many diseases. How awkward must that physician feel, who, through the solicitation of his patient or of his spontaneous direction, permits the use (as is daily done) of horehound, balm, catnip or boneset tea, and when the article is shown by the nurse, cannot discriminate one from the other with certainty, not possessing the Botanical knowledge to enable him to do so. Or, who being called to a child who has eaten what has been supposed to have poisoned it, does not know either the plant it has eaten when shown to him, or consequently, any thing about its deleterious, or innocent properties. Destitute of this knowledge he is at a loss what to do, or how to answer the anxious enquiries of friends; yet this is a case which frequently happens, particularly in the country. Even these *little things*, which are *purposely instanced* to bring the bearings of the subject before you, by the very familiar nature of the occurrences in sick-rooms, show forcibly, how much the consequence and usefulness of a physician must be undervalued by his patients, from such ignorance and exposure. But a more dangerous result must often attend his destitution of that knowledge which he ought to possess to be truly useful, when the objects eliciting his knowledge, are more important; an inference which cannot be denied to be within justification, from the premises. What would you, or any other reflecting man think of a practitioner, who would prescribe for your ailments, a remedy he had never seen, did not know when he did see, nor the systematic name by which it was known in the books; who had prescribed it,

with high commendation, by its vulgar name, and that vulgar name applied also to two or three other plants. To say the least of it, would you think he knew all he ought to know, and all which the adventitious medical sciences could usefully impart. But for an example, out of a thousand: I am acquainted with a physician who prescribed in the morning, in one of the first families of this city, a medicinal plant, the *Prinos verticillatus* or black alder, with high encomiums on its virtues and power as a remedy. In the evening of the same day he visited my house where I had on the table, a painting and large quantities of the plant itself in flower, together with the bark in chips of which he had prescribed the decoction. He enquired what they were; was utterly ignorant of either, and even of the scientific name by which the plant stood in Coxe's Dispensary. I told him it was the medicine which accident had acquainted me with *his having that morning prescribed*, and of which he himself had *published an account!* Does this need much comment? Might not a deleterious plant have been, from its resemblance, substituted for this in mistake; or would this physician if the real one had been shown him, with a spurious one, have been able to point out his own medicine? Yet this gentleman advocates conspicuously the *inutility of Botany to the physician!!!*

I trust I have satisfactorily shown, that the mineralogy of *Materia Medica* is already provided for in the medical education of this University; and that zoology yields not only a very small comparative number with mineralogy, and still less with Botany, but, from the very nature of the articles from that branch of natural history, it is not requisite that much need be said on the subject; and that it is the province as well as the duty of the Professor of *Materia Medica*, to teach what little is necessary. But that Botany, yielding so large a proportion (the Faculty admits 500) of the articles of the *Materia Medica*, does give ample scope, from the very necessity there exists in the subjects of the vegetable kingdom, for discrimination by definite characters,* to a chair of Botany incorporated with the Medical Faculty, must be obvious. That without the knowledge this subject communicates, graduated physicians are turned out on the country, destitute of that necessary information which will enable them to be useful, safe and intelligent physicians,† particularly in the United States, where so large

* "So sensible are the persons engaged in the formation of the national Pharmacopœia, that ordinary language cannot convey an adequate description of the articles employed in medicine; that prefixed to each article drawn from the vegetable kingdom, they have given the Botanical appellation, together with a reference to some system of approved authority." Tho: T. Hewson, M. D. of Philadelphia, see his letter, the sentiments of which are approved by eight other physicians of this city, in my memorial, page 14.

N. B. The persons engaged in the formation of the Pharmacopœia alluded to by Dr. Hewson, were physicians delegated from the medical colleges and societies of the whole United States.

† Such are truly "*Doctors sine doctrina*," Hosack; see his letter in my memorial, page 11.

a proportion of them practice in the country, is equally evident. I have also shown, that Botany is *not restricted* to "living plants and their functions, and to mere classification," as is asserted by the Faculty; but extends properly to teaching the discrimination with accuracy of the dead roots and other parts of plants with which the *Materia Medica* abounds. A single fact as an example, may here properly be mentioned, by way of bringing the subject familiarly before you. It will show that even the mere classification of plants, much as it may be undervalued, does lead to a knowledge of their properties. All vegetables of the 13th class of the Linnæan system, are esculent without exception, so that a Botanist who finds a fruit unknown to him, produced by a plant of this class, which he can readily ascertain, might eat it instantly with impunity; while all umbelliferous plants, a section of those of the 5th class are deleterious. It has also been ascertained by Decandolle, that all plants of the same natural family, are possessed of the same, or similar medicinal properties; a fact which has led to the enrichment of the *Materia Medica*, with numerous valuable medicines. A host of other instances of the elucidation of the interests of medicine by means of Botanical knowledge and classification might be adduced, but these are deemed, in this place, sufficient for the purpose.

5th,—It is stated by the Faculty that the *Materia Medica* embraces only 500 articles from the vegetable kingdom. This estimate falls short indeed of the number of vegetables and their products, which the improved state of the *Materia Medica* of the present day comprises; the number is over 800, and indeed, including dietetics (which are included in the *Materia Medica* of Cullen, a work universally acknowledged to be the most celebrated on this subject) the number far exceeds 1300. I have already shown that the simple and compounded vegetable medicines detailed in the Edinburgh Dispensatory are 1372; in Thatcher's Dispensatory 1037; in the Pharmacopœia of the United States, 292; in Eberle's Elements of *Materia Medica*, 211; in Chapman's *Materia Medica*, 198; in the Flore Medicale, edited by Chaumeton and Chamberet, and which consists (though yet unfinished) of 90 Livraisons, each describing four medical plants, there are contained in the whole 360; in Stokes' Botanical *Materia Medica*, consisting of 2626 articles, with dietetics, there are described 1300 uncompounded vegetable medicines. That the subjects, therefore, of the vegetable kingdom interesting to physicians do not furnish "a number obviously too small on which to found a distinct Professorship in medicine," as the Faculty state, must not only be sufficiently evident from the facts embodied in this communication; but on the contrary, that such a professorship should be established, and is demanded by the public interests as well as the reputation of the school, is evident from the fact: that such a distinct professorship exists in all eminent medical schools of Europe; and from the fact that a know-

ledge of Botany is required in Britain, by an act of Parliament* passed but a few years ago, of all who intend to practice the healing art, previously to their entering on its duties. A late established Medical school in the United States, that of Charleston, S. C. has incorporated it in union with Natural History, with the other branches of medicine, and rendered two courses necessary to a medical degree. Their printed document is before you in my address. That this is not an unpopular arrangement is evident from the printed catalogue of the professors and students of that college, dated 1825, to be laid on your table on the 5th of April next. This shows, that though the past winter was the first of its operations, it has called together fifty students, all of whom, except four, have matriculated. That college has not felt disposed to "satisfy students" by allowing it to be "optional" to attend on Botany and they have not, by their imperative regulation in relation to that chair, had any reason, from their great success, to repent the measure.

6th,—Is or is not Botany generally taught in medical colleges of established reputation? To this enquiry the Faculty reply: that "in Edinburg the attendance on a course of Botany is *necessary* to a degree in medicine; but, as an actual acquirement, its importance is only nominal, as very slender information in it, is quite sufficient to satisfy the Board of Examiners there." This statement should not mislead, merely because it is assertive. It is not only incorrect, but wholly gratuitous. Will it for one moment be supposed probable, that a chair which has existed for more than 34 years in the school of medicine of so celebrated a University as that of Edinburg, which was vacated in 1820 by the death of the incumbent, Dr. Rutherford, and immediately refilled by the election of Dr. Graham, the professor of Botany in Glasgow University, who now occupies it, would have been thus long continued, and thus recently supplied at a period when the death of the incumbent afforded so good an opportunity of abolishing the Professorship, had it been deemed by the Senatus Academicus, merely nominal, and if the subject were held in such slight estimation, as is asserted? The simple fact, that the Senatus and Patrons (the Town Council) of the Edinburgh school, sent to Glasgow for a professor to supply the vacancy which the death of Dr. Rutherford occasioned, at the period mentioned, is conclusive to prove that it is *not* a mere nominal chair, and that "very slender information on the subject" is *not* "quite sufficient to satisfy the Board of Examiners there." This inference is irresistible. The fact alluded to further proves, that the existence of that chair as necessary to a degree in medicine, in that school, which the Faculty so reluctantly find themselves obliged to admit to be the case, is not owing only to "a po-

* "It has now been made essentially necessary by an Act of Parliament, that every student in medicine should be well versed in this science; and that before he can practice, he must go through an examination respecting his proficiency in the knowledge of Plants." *British Plants*, by T. Purton, Surgeon, 1817—Vol. 1, p. 7.

sition which is maintained *probably* by ancient usage principally, and *perhaps* by some anomalies in the distribution of the branches of medical instruction," as the Faculty insinuate. Had this ancient usage alone placed the chair in the conspicuous and important position it maintains, the moment surely of the death of Dr. Rutherford would eagerly have been seized on, by the Senatus, to abolish the obnoxious professorship; or, at least, a new professor would certainly not have been called from a distant University and appointed to fill a "nominal," and useless chair, in which nothing was taught, and from the attendants on which, "very slender information was required." An act tending so strongly to the serious injury and unpopularity of the school, cannot be supposed to have emanated from the Senatus.

If any thing further were necessary to disprove the gratuitous position of the Faculty on this point, it will be found in the fact, that the Magnates (Senatus Academicus, and Patrons the Town Council) of the University of Edinburg, have, at the suggestion of the medical Faculty of that school, conveyed in propositions from that Faculty, bearing date July, 1824. lately (Dec. 1824) entered into a full and critical examination of the courses of study and requisites for a medical degree, which results in leaving all the professorships now stand as they previously stood, Botany among the rest, and in the propositions to make only the following new regulations: viz.

- "1. The writing of a Thesis is made optional.
- "2. The period of study is extended from 3 to 4 years.
- "3. The indulgence granted for study in a foreign university is restricted to one year.
- "4. Study in London is allowed to count for one year.
- "5. A six-months' course of Midwifery is added to the established routine of study, the "curriculum" as it is technically called.
- "6. A three-months' course of Chemical instruction is added to the six-months previously required.
- "7. Attendance on an Hospital for six months in two separate years, is now proposed; or in lieu of this, attendance for six months as an Hospital Clerk, or pupil, for nine months at a Dispensary, or service in his majesty's army or navy.
- "8. The examinations, instead of being altogether in Latin, as heretofore, are modelled after the usage of the Apothecaries' Company in London; that is to say, the student is examined first as to his proficiency in medical Latin, and in the prescribing of medicines; and afterwards in English, in the different branches of medical science."

This code of new regulations is taken from the London Medical and Physical Journal for Oct. 1824, page 353. And the document containing it has been received by the editor, directly and authentically from the University. Permit me to ask whether, if the observations of your medical Faculty in relation to the chair of Botany in that school, which accounts for its existence by ancient

usage, and which declares it nominal, inefficient, and unesteemed be correct; whether in all this recent revision of the courses of instruction, undertaken, with an avowed view to amend and reform—the chair of Botany would have remained untouched? It is not reasonable to suppose that it would. That any delicacy has arisen on this subject from the circumstance of that chair having an incumbent (Dr. Graham) cannot be believed. Since some of the points of the new regulations relative to the necessary attendance of the students on the chair of Midwifery* who “had then” (at the time of these regulations) “matriculated, or who should matriculate prior to the first of January, 1825,” affected the incumbent (Dr. Hamilton) so severely that he made an appeal to the patrons for redress.† But I have already shown that only five years ago the chair existed without an incumbent; and that period was not seized on to abolish it. This is not all. So far is the Medical Faculty of Edinburgh University from deeming Botany an useless or inefficient chair, that in propositions (subsequently made to those of July, 1824) to the Senatus, “they propose that Natural History should be added to the course of medical instruction.”‡ Does this look like hostility to the collateral branches of *Materia Medica*, or slight estimation of their importance?

7th,—The Faculty further account for the existence of the chair of Botany in Edinburgh, by another gratuitous insinuation; it is “perhaps by some anomalies in the distribution of the branches of medical instruction,” and give as an example “that Botany is a distinct branch and essential to a degree, while Surgery and Midwifery are *huddled* up with other branches, and of course imperfectly taught.” There are no anomalies in that school. So far is this from being the case in relation to Surgery and Midwifery; that there are *three professors of Surgery*, viz. Dr. Ballingale on Military Surgery who lectures at 2 o’clock P. M., and Mr. Russel and Mr. Allison, who conjointly lecture on Clinical Surgery; the hour of lecturing being 5 o’clock of the same day. While Dr. Hamilton is professor of Midwifery and the diseases of women and children, who lectures at 3 o’clock. These facts are taken from the authentic advertisement published by the professors themselves, and have been shown to Mr. Chauncey, Chairman of your Committee, in the European journals of October last. In addition to this let me call your attention to the fact that the 5th regulation of the new code in that University, which I have quoted above, provides “a six-months’ course of Midwifery, in addition to the established routine of study.” Do these facts show that Surgery and Mid-

* See Medical and Physical Journal for January, 1825 p. 80.

† “Dr. Hamilton was, naturally enough, very wroth at a regulation which at once deprived him of perhaps 500 pounds, independent of the public loss thereby sustained; and in that mood wrote an angry letter to the Principal, in which he declared his intention of appealing to the Town Council: the patrons of the college.” *Ibid.* p. 80.

‡ *Ibid.* p. 81.

wifery are anomalously united with other branches, and "of course imperfectly taught" in that school? Midwifery is *naturally* incorporated with the diseases of women and children; and let me further observe that the same union with Midwifery which extends only to the diseases *peculiar* to women and infants, exists in New York, Baltimore and Charleston schools; in Leyden, Gottingen, and various other colleges. This union is therefore, neither academically nor physically, an anomaly; while Surgery is not only not united with any other branch, but is in fact, in an University, educating so many naval and military surgeons, most correctly divided, into "military and clinical surgery;" and is honoured by having *three* professors to teach it. That these branches are not therefore "imperfectly taught" must be evident. Neither is this the case in Glasgow, where the professorships are precisely the same as in this school, with the exception of a seventh chair, that of Botany, there likewise necessary to a degree. A foreign writer, speaking of the instruction of these schools observes: "That the medical education of Edinburg and Glasgow Universities accomplish every thing that elementary instruction can supply, is a truth too obvious, too well established, too universally allowed, to be disputed.*

8th,—The Faculty admit that Botany is necessary to a degree in Paris, and state as a chief reason for it, that there medical education is full and enlightened. Is this a sufficient reason why it should not be necessary to a degree in this school? Shall the trustees of this University not insist, that in its Medical School, claiming to be the first in the United States, the education of so important a man to the community as a well instructed physician or surgeon, shall here receive a liberal and enlightened education, as he does in the scientific countries of France and Britain, and the learned empire of Germany? Is there a more dangerous man in a community, than an ignorant practitioner of medicine? Are not the lives of Americans as valuable as those of the inhabitants of France, or of any other country, in which the education of a physician is solid and enlightened? The Faculty further admit that "it will be *probably* found that a knowledge of Botany is required in several other ancient schools of Europe, but *the fact* may generally be accounted for, in the same way." I have, I think, proved, that their manner of accounting for the existence of this Branch as an under-graduate course of instruction, in Edinburg, is far from being justified by the circumstances of the case in that instance. And perhaps their suggestion as to the *rationale* of the "*fact*" in "other ancient schools of Europe," will not be deemed more tenable. Is it not more consonant with reasonable deduction from the premises to infer: that, as Botany is found to be necessary (the faculty admit this) in many other ancient schools of Europe besides those of Edinburg and Paris, (in truth in all eminent me-

* Edinburg Medical and Surgical Journal for 1820, p. 499; article "Profession of Physic in England."

dical schools of Europe without exception) it must be universally considered by the medical men, and directors of medical schools of the transatlantic world, to be *essential* to the education of a physician? The facts are indubitable—they are admitted by the Medical Faculty—the inference, irresistible. They are, moreover, conclusive, that I have taken grounds in my memorial and address to you, and in this circular, which are untangible by just opposition; which justify my appeal in favour of the science you have appointed me to teach; and, that the arguments in this and my other communications on the subject, being the fair and rational inferences from *acknowledged and well established facts*, are irrefragable.

Permit me here, before I dismiss this part of the Faculty's communication, to ask, why they do not more particularly designate the "*many other ancient Medical Schools of Europe*, in which it is probable Botany is required for a degree?"—Why is Glasgow University, standing in Britain only second to Edinburg, passed over? why are Aberdeen, Oxford, Cambridge, Leyden, Gottingen, Kiehl, Upsal, and Florence Universities, passed by? Why does the Faculty use the qualifying and dubious word "*probably*," in relation to the many ancient Medical Schools of Europe?—The essential elementary branches of all these colleges are *known*;—are matters of record and history. The Faculty enjoy the same means of information which I possess; and I have informed you, Drs. Hosack, Hewson, Emlen, Nancrede, and others in my memorial have informed you, that in all of their Medical Schools, Botany constitutes an essential elementary branch for a medical degree. It rested with the Faculty to give a negative to my statement, and that of the physicians mentioned, on the broad basis of *fact*. They have not done so. Why do they not mention the University of Dublin, a school which stands very high in Britain? It was within the knowledge of the Faculty I presume, that in that school also, Botany held a conspicuous rank. Permit me for your information to supply their omission, in this instance, by the following record, taken from a foreign work of high repute.

"Account of the complete School of Physic in Ireland, instituted by Parliament, for the Instruction of Students in Medicine, Surgery, and Pharmacy."

"The students in Physic are matriculated in the University, for which they pay five shillings. There are six professorships—those of *Anatomy* and *Surgery*, of *Chemistry*, and of *Botany*, are on the foundation of Trinity College, and are called University Professorships; those of the *Institutes of Medicine*, of the *Practice of Medicine*, and of *Materia Medica and Pharmacy*, are on Sir Patrick Dunn's foundation, and are named King's Professorships. (By Act of Parliament 21st, George II.) Provision is also made for the addition of a King's Professorship of *Midwifery*, as soon as Sir Patrick Dunn's funds permit.

Lectures on the following subjects are delivered from the first

Monday in November, until the end of the succeeding April, (six months) viz. on Anatomy, Physiology, Surgery, and Chemistry, in Trinity College. On the Institutes of Medicine, on the Practice of Medicine, and on Materia Medica, and Pharmacy, in Sir P. Dunn's Hospital. The Lectures on Botany commence on the first Monday in May, in Trinity College, and continue until the end of July. Terms for each of these courses, four guineas.

Clinical Lectures are given on the cases of the patients in the hospital, at least two days in each week of every session. The duty is taken for three months by the professors alternately, in such order as shall be agreed upon amongst them. Terms of each course, three guineas.

Anatomical Demonstrations are given daily from the beginning of the session until April, by the Demonstrator of Anatomy, in Trinity College. Terms for dissections, subjects, and demonstrations, six guineas—for the demonstrations alone, four guineas.

Students in *Botany* have access to the Botanic Garden, which is in the immediate vicinity of Dublin, and have an opportunity of taking frequent excursions with the professor of Botany, and his assistant, to the mountains and sea-coast adjacent to the city.

Botanical Demonstrations are daily given by the professor's assistant, in the garden, during the season. Terms of which, one guinea.

Degrees. *The students who do not graduate in the Arts*, are permitted at the end of three years from the date of their matriculation, to undergo an examination before the six professors of the school, in their respective departments, on producing to the Board of Trinity College certificates of diligent and regular attendance on Anatomy, Surgery, Chemistry. Botany, the Institutes of Medicine, Practice of Medicine, Materia Medica and Pharmacy, the Clinical Lectures, and Practice of St. Dunn's Hospital. They likewise write a Thesis in Latin. If found qualified by the examination, publish the Thesis, perform the academical exercises for the degree of Doctor of Medicine, and receive a diploma from the Board of Trinity College.

The students who go through a collegiate course, on producing certificates of their strict attendance on the Lectures of the Professors in the School of Physic, on the Clinical Lectures, and the Hospital, are three years after having graduated as Bachelor of Arts, admitted to an examination before the Regius Professor of Physic, and the Professors of Anatomy, Surgery, Chemistry and Botany, of Trinity College; on being approved, and performing the usual academical exercises, take the degree of *Batchelor of Medicine*. Upon sufficient standing, publishing a Thesis, passing a second examination before the University Professors, and performing the necessary acts, the full degree of *Doctor in Medicine* is conferred."*

* Edinburg Medical and Physical Journal for 1818, page 662—3—4, and 1820, p. 609.

Account of the professorships of the school of Edinburg, as late as October, 1824.* “The lectures commence on the 28th of October, and terminate on the 1st. of May.

1. Anatomy and Physiology.—Dr. Monro.
2. Practice of Medicine and Clinical Medicine.—Dr. Home.
3. Institutes of Medicine.—Dr. Duncan, Senr. and Dr. Allison.
4. Military Surgery.—Dr. Ballingale.
5. Botany.—Dr. Graham.
6. Chemistry and Chemical Pharmacy.—Dr. Hope.
7. Dietetics, Materia Medica and Pharmacy.—Dr. Duncan, Jr.
8. Midwifery, and the diseases of women and children.—Dr.

Hamilton.

Terms for each of the courses, 4 guineas.

1. Medical Jurisprudence.—Dr. Christison, the lectures on this branch not requisite for a degree.

2. Clinical Surgery.—Mr. Allison and Mr. Russell, not necessary for a degree, but fully attended, because that attendance is required to the extent of at least one year, of candidates who present themselves for examination before the Royal College of Surgeons of London.§

The foregoing details, together with those I shall presently give of Leyden, show plainly, that there is no difficulty in obtaining positive and authentic information on the subject of Botany, as an essential branch of medical instruction, in the principal Medical Schools of Europe. Neither do these details, admit for one moment, the idea that Botany is thus found to exist in these schools *par-hazard*, or by ancient usages only, or by any uncommon, or unaccountable concurrence of circumstances. That course which is universally pursued must be deemed, universally, useful and necessary. This is most certainly true in matters of science, affected by academic details; for these are the results of deliberation and forethought, respecting present expedencies, predicated on the experience of other matured and long tried arrangements. Universities or Medical Schools, are not founded simultaneously. Had the most ancient schools embracing Botany among its essential branches, proved it useless, those of more modern date would have expunged it; this would have successively been the case until it had altogether disappeared. The reasoning of your Faculty therefore, which so strangely accounts for the universality of the usage on this subject, is futile and unsound.

For a full account of the state of Botanical instruction on the continent, I beg leave to refer to Dr. James Edward Smith's work.†

* Edinburg Medical and Physical Journal, October, 1824, and other British periodical works on Medicine.

§ See new regulations of this College, in the Ed. Med. and Phys. Jour. for 1824.

† Sketch of a tour on the continent, by James Edward Smith, M. D. F. R. S. 3 vols. 8vo.

The history of the Medical institutions of Europe shows also that Botany flourishes in the Medical School of Vienna, and in Pavia, Milan, and in the celebrated University of Leyden, that ancient seat of learning, so long the theatre of the talents and erudition of Boerhaave. In that University, distinguished by a splendid botanic garden,* “Physic and Botany are cultivated with great success.”† But I pass on without exhibiting their details.

I subjoin also, in this place, an account of the botanical lectures delivered in the University of Leipsic, where botany is also requisite for a degree. So important is it esteemed in that school, that there are *two* professors to teach it. I copy it from the printed catalogues, in German, of the lectures of that school, in which there are annually two sessions; one commencing from Easter to Michaelmas, called summer session, the other from Michaelmas to Easter, termed winter session. In both these sessions botany is taught.

From “the catalogue of the lectures delivered in the summer of 1820, in the University of Leipsic, beginning May 8.

Dr. Schwaegrichen, Professor ordinarius Hist. Nat. et Rei. Herb. one of the Medical Faculty; on botany, with excursions, 7 o’clock, 4 days a week.

Dr. Kunze, Medicinæ Professor extraordinarius et Rei Herb. anatomy and physiology of plants, 11 o’clock, two days of the week, also botanical excursions, coupled with demonstrations.

Catalogue, &c. in 1820, (winter.)—Dr. S. on cryptogamic plants, according to his syllabus, 8 o’clock, two days of each week.

Dr. K. on the same, 11 o’clock, 2 days; and on officinal plants, four days.

Catalogue, &c. in the summer of 1821.—Dr. S. on practical botany, 5 o’clock in the afternoon, and general botany, 7 o’clock, four days.

Dr. K. natural history of cryptogamic plants, two days of the week. Economy and construction of plants, 8 o’clock, 4 times a week, also a course of theoretical botany.

Catalogue, &c. in 1821, (winter.)—Dr. K. on officinal plants and their application, 11 o’clock, four times a week, also on cryptogamic vegetation, twice a week.

Catalogue of 1822, (summer.)—Dr. S. on general botany, 7 o’clock, four times a week, with excursions twice a week.

Dr. K. on the algae, 8 o’clock, twice a week, also on officinal plants twice a week, and on the philosophy of plants, 11 o’clock, four days of the week.”

Similar records might be exhibited to you of all the universities, but I have thought it sufficient to instance, in detail, one from Ireland, one from Scotland, and one from the continent, as examples. The others are numerous on the same principles of instruction.

9th. Relative to the diversity of sentiment, which the faculty state to you, exists in regard to the utility of botany to the physician, even in those schools where it is imperative to attend, it will be observed, 1st. that they refer for this fact to the Monthly Review for 1791, 31

* British Review, 1819, article Medical School.

† See Dr. Carter on Foreign Hospitals, 8vo. London, 1819.

years ago; a period, since which the science of medicine, and sentiments of physicians on the subject of elementary education, have been greatly enlightened. And, 2nd. the article on which they predicate this remark, which contains, after all, merely the individual sentiments of its author, has reference principally to the school of Edinburgh, and to the expediency of adopting the Linnæan system. That such "diversity of sentiment" does not now exist in that school, must be evident from what I have already quoted of the recent revision of its "curriculum" of study. But in that very article, old as it is, and the quaintness of its style bespeaks the era in which its author imbibed his sentiments, the connexion of this science with medicine is distinctly intimated. Remarking on the era of the adoption of the Linnæan system by the College of Physicians of London, the writer observes—"Botany speaks largely to the amusement of mankind, but *principally to the salutary purposes of the art of healing*; of course, the concurrence of those who preside over the art of healing, gives the most authentic countenance to the medicinal modes which are most deserving of attention."* Does it not seem surprising, that the Faculty, in communicating to you the idea that a diversity of sentiment exists on the subject of the utility of botany to the physician, should, from the whole compass of their reading and research, have been able only to refer to a single article published one-third of a century ago? Why have they not evidenced such diversity of sentiment, by proof, authority, or public opinion of the present day, or within ten years? Their omission to do so implies their inability. The universality of the usage of the universities of Europe, of embracing botany in their courses of elementary medical study, certainly suggests no such idea. The history of modern medical science exhibits no such documents, no such authority, no such opinions. Had the case been otherwise, they would doubtless have been brought to your view of a later date than 1791. In truth, the medical courses of instruction of the present day, in London, where there is no university, exhibit botany among them; as those of the celebrated London hospitals. In the medical and surgical course of Guys' hospital, the first in London, botany is taught: in "the study for the Apothecaries' College of London,"† botany is taught. In short, it is supported in that city by numerous other courses of lectures. This is what is technically termed in Dublin, Edinburgh, and Glasgow universities, "study in London"—and counts for one year in either of those universities, when the candidates present themselves for their honours.

That a shorter time than thirty-four years is a period long enough to effect a more liberal and enlightened view of medical instruction, in this country, to keep pace with its strides to national science, must be obvious by the records of your own body, which show, that Surgery was first introduced in its proper importance in 1805, and Midwifery in 1813. It remains for you to decide, whether another step *towards completing* such a medical education as ought to be obtained in the first medical school of the United States, shall not now be taken, by the introduction of Botany with its legitimate rank.

10th. In reply to the observations of the Faculty, against the ex-

* Monthly Review, 1791, article Pulteney's Sketches of Botany in England.

† This college confers diplomas.

pediency of introducing the professorship of botany into the courses of necessary instruction, predicated on the necessity they uphold (for this is the virtual effect of their language) of maintaining high classes, by rendering the school popular at the expense of its reputation, and the usefulness and strength of its elementary education, I have not much further to urge in addition to what I have already advanced on this view of the subject, in my "Address" of the 2nd of January last. There I have fully developed the impolicy of sacrificing the public interests, by weakening the real advantages of the students, which, in that document, I have endeavoured to prove would be done by continuing to restrict their instruction. The greater the number of new medical schools in the United States, the more numerous will be the opportunities of the students and their parents, guardians and preceptors, of making comparisons of the relative advantages of the whole. Whatever course, therefore, may be pursued in any one, which will cause it to lose by comparison with another or others, must have the effect on the *alumni* themselves, of undervaluing the honours of that particular school, when reflection and maturer years shall have shown how much they needed a stronger elementary education. The influence of these alumni, when in their turn, by becoming preceptors, their power of using that influence will extend to the designation of the school at which they would choose to have their pupils educated, will be deeply felt by that college, which, in the education of themselves, evinced its inferiority to any other. This sentiment has reference to all the medical institutions in the United States; for the time has now come, when no one can maintain its supremacy, from the mere fact of the earlier date of its existence; but will, by the conflicting claims of different states of the union on the pupils of those states, to resort to their own schools, be altogether supported, in superiority of numbers, by the strength and superiority of its instruction. If any one school, therefore, of the fourteen* respectable medical institutions of the United States, shall adopt, or if already adopted, shall persist in the unsound and mistaken idea of gaining numbers by the popularity of slender instruction, instead of calling them, in despite of distracting predilections for their native or contiguous states, by the full, liberal and enlightened course of its instruction—it requires no spirit of prophecy to predict, that such a one will fail in its object, while another or others, far from, or near to it, will, by adopting a contrary system, deserve and maintain the lead.

On the question of expediency, the Faculty, in answer to the committee's inquiry, whether "it is or is not, at this time, expedient to introduce the professorship of botany into the Faculty of Medicine in this university," declare it as their "opinion that neither now, *nor at any other period*, ought botany to be attached to the Faculty of Medicine." Without suggesting any thing further on this strong denunciation of this science, and the hostility to it avowed in this opinion, or without making any observations on the fact, that in their reply to the definite inquiry of the committee, as to the present time, the Faculty

* Pennsylvania (Philadelphia) 2; New York 2; Connecticut 2; Massachusetts 1; Rhode Island 1; New Hampshire 1; Vermont 1; Maryland 1; Virginia 1; Kentucky 1; South Carolina 1. From several of these states, the school of this University has heretofore been chiefly supplied.

have somewhat overweeningly, perhaps, betrayed to the trustees, by the sweep of the reply so far exceeding the bounds of the query, that from this faculty they *never can* expect any acquiescence or co-operation on this subject; still a consideration is suggested out of it. It is not for me to make any strictures upon this declared opposition to the interests of the science I have to teach, further than I have done so in this circular, by sapping the ground of that opposition, by the power and force of broad and admitted facts. But it may not, perhaps, be amiss to suggest to your consideration, that this is the second time, after a lapse of nearly five years, that my efforts for your succour to the science of botany, have been opposed from the same source; and to suggest further, that as no co-operation can either now, nor at any future time, be expected from the faculty, whether this may not be deemed as favourable a moment as any other for your independent decision of the question, if your minds shall have been satisfied by this time on the basis of its intrinsic merits.

11th. As regards the necessity of instituting a chair of practical anatomy,* and one of the institutes of medicine in preference to that of botany, something ought to be said. First, practical anatomy is, by the statement of the faculty itself, acknowledged to stand in no need of succour; for they state, that even graduated physicians resort to this city to cultivate it. 2nd. It is not necessary to coerce students to attend to this subject, by an additional chair, because they are already obliged to obtain a knowledge of anatomy, and it is not easy for them to obtain that knowledge without actual dissection, which is, in fact, the study of anatomy. I do not hesitate to declare that all the students do dissect; as a proof of this, I need only mention that Drs. Hewson, Davis, Mr. Pattison, Drs. Harlan, McClellan, Godman,† Harris, and others, have been all engaged, for years past, in giving instruction in practical anatomy; four of whom had classes the past winter;

* A professorship of practical anatomy! There was never such a chair heard of. There does not exist such a chair in any medical school of the world, and it cannot exist from the very nature of the subject. There is "a demonstrator of anatomy," or a "superintendent of dissections," in all schools, whose duty and objects are the same as those of the "adjunct professor of anatomy" in this school. But dissections are no further enforced in those schools than they are here. The subject stands precisely on the same footing as here. Its obvious usefulness, in order to be acquainted with anatomy, the knowledge of which is indispensable every where, is of itself sufficient to make it, elsewhere as here, to use the language of the Faculty, "spontaneously much followed." Examine the records of schools in this circular—examine the regulations of all the European and American schools, and this statement will be corroborated. I would not undervalue the subject. No medical man has a stronger sense of the usefulness, the necessity of dissection, to be a good anatomist, a good surgeon, an enlightened physician. I am particular on this point, because I think it proper to show that I am incapable of undervaluing one branch, to advance another. The *mere details* of the subject, in the aspect presented to you by the Faculty, I speak of, and I have given the grounds on which my difference of opinion rests. The best text book for anatomy is the dead subject. It will be bought and examined, like any other text book, by the student himself, without further imperative regulation than that which demands his knowledge of the subject. Finally, a chair of practical anatomy is no less an absurdity than a chair of practical midwifery!

† I am informed by him, that his practical anatomy class of the winter of 1823—4 consisted of 84. Of the winter of 1824—5, of 69. That his spring classes average 30.

and a large majority, quite as many as can be accommodated, resort to the class of Dr. Horner, in the University. Thus the students enjoy fully the advantages of this subject, and are, as I have already remarked, coerced to devote themselves to it, by the law compelling them to be acquainted with anatomy. A professorship on this branch is, therefore, not necessary; indeed it would be exceedingly grievous to the students to be compelled to pursue their dissections, to the number of four or five hundred in one class or building: in fact, it would be utterly impossible. Now they are well accommodated by all the different teachers of the subject, and the monopoly would be impolitic, unjust, unpopular, and ruinous to the interests, comfort and convenience of the students. But if I have shown that succour is not necessary to uphold this branch, by the very statement of the faculty, and the facts I have mentioned, I trust I can as easily prove that *it is* necessary to uphold the science of botany. For if the Medical Faculty will, to the Trustees, hold the strong language they use against its importance and usefulness, will it reasonably be expected that they will be less strenuous in their representations against it, to the students themselves?

12th. It is said, that Dr. Chapman, from the "extended nature of his other professional duties, has only an insufficient time to devote to the Institutes of Medicine." On this point, all I have to observe, is, that the course is as long by your law, now, as it was in the time of his predecessors in the same chair. Yet Dr. Rush always found time to deliver as luminous and perfect lectures on the theory and practice, as Dr. Chapman does, besides the institutes of medicine, devoting two hospital days of every week, to his clinical lectures in the university; and this he did from his first appointment to the day of his death. While Dr. Chapman, till within the last two years, when his appointment to the Alms House enabled him, for the first time, to give clinical lectures, enjoyed the advantage over Dr. Rush, of having all the additional time for the institutes, which his want of opportunity of giving clinical lectures, afforded. Dr. Chapman's immediate predecessor likewise in that chair, the late Dr. Barton, found time during the very short period he held it, notwithstanding the wretched state of his health, to deliver full lectures both on the theory and practice, the institutes, and clinical objects. Besides, if Dr. Chapman has not a sufficient time to fulfil the duties of his chair, by the present arrangement as to hours, he might use some of the necessary additional hours now devoted to his private classes.

13th. In the first objection urged by the faculty, in relation to "what would be the most expedient arrangement as to time to be allotted to the professor for lecturing on botany," &c. they urge against the winter season, "the complete devotion of time, even of hours usually appropriated to rest by our students," during that season. This is indeed a strong representation; and as it would seem, on the first view, to insinuate, that this entire consumption of time is altogether owing to the necessary and established engagements of students with the professors of the school, in their *public capacity*, and by the *necessary study* to keep up with the *public and authorized lectures* of the university, and consequently required by your regulations: it is not only quite proper for your information, but quite just to the object of this and my other communications, on the subject of botany, to inquire circumspectly into the causes of the state of things thus repre-

sented. The regular lectures begin at 9 o'clock in the morning on Mondays, Tuesdays, Thursdays and Fridays, and terminate at 2 o'clock. On the same days, they recommence at half past three, and terminate at half past four o'clock. On Wednesdays and Saturdays they begin at 12, and end at 2 o'clock, to give the students an opportunity of attending the Alms House and Hospital. On the afternoons of these two days there are no lectures. On Mondays, Wednesdays and Fridays, at 7 P. M. the adjunct professor of anatomy recapitulates the two preceding days' lectures of the professor of anatomy, to the dissecting class only.* Except these, there is not now, and never has been, any regular public lectures delivered in the university class rooms, except an occasional one at 8 o'clock, by the professor of chemistry, when he defers his lecture of the morning to the hour of night, for the express purpose of performing some few experiments, which require darkness, on which occasion he shades his lamps. I am aware that an interrogatory meeting with a *portion* of the class, is held by the adjunct professor of anatomy, on Tuesday at 7 P. M. in those rooms; but this is on his *own private account*, as one of the instructors of the *private class* of another professor, and has nothing whatever to do with the public engagements of the students, or the advantages they receive for their public fee. I am also aware, that the students do often pursue their dissections after night, but they can seek their own hours for this purpose. Thus it appears, that from half past 4 o'clock to 11½ at night, a period of seven hours of every day of the week, except the three hours at 7, mentioned for the dissecting class, and a longer period of the two days of the week on which there is no lecture on midwifery, is wholly at the disposal of the students, for study and dissection, allowing them eight hours sleep, by rising at 7 o'clock, and Sunday as a day of rest for its proper purposes. How then is all this time, even to "*hours usually devoted to rest*," consumed? I answer, much of it must be employed by those who belong to the private classes of several of the professors, who have established such classes. For example, the aids of the private class of the professor of the practice, are six in number, seven including himself. The professor of surgery has another private class; the professor of chemistry a third. The private classes, therefore, have engagements with *nine gentlemen, besides those of the regular lectures*. For this system of private instruction,† unknown and unauthorized by your body,

* Members of the general class could be admitted by paying an additional fee of \$5.

† These private classes are confined to the professors mentioned. The professors of anatomy and midwifery *never* have established them, and the professor of materia medica has abandoned his within a year or two. They were never known in this university till within *late years*. The technical terms by which the system is known, is, by daily usage, sufficiently familiar to you, and sufficiently expressive. The late professor Wistar daily devoted a portion of his *public* lectures to this interrogatory and recapitulatory purpose, and often an additional hour in the afternoon. But this he considered as part of the public duty of his public lectures, for the advantages of which the students had paid their public fee. He neither required nor received private or extra compensation. The same course is pursued by Dr. Physick, by examining the class in the commencement of every day's public lecture, on the lecture of the preceding day. He, likewise, deems this course a part of his public duty—nor

the professors require for themselves and their aids, (in one instance six in number) private and extraordinary compensation. And as it is well known in the university that many of the candidates attend *all* of these *private* classes of the professors, the wonder, in regard to the consumption of time, ceases, and the state of things is accounted for. It is this system, and the multiplied engagements, which in a private communication with the professors interested in it, and for private purposes, and not the necessary and established engagements formed by the students, with the professors in *their public capacity*, and for the benefits of which they have paid the public fee established by your board, which mainly creates the difficulty and want of time complained of. Doubtless, it may be considered, though very expensive, not without its *peculiar* advantages to the students. Be it so. I have nothing further to do with its merits here, than in so far as its effects are urged to you in your public capacity, as an irresistible argument, against succouring the depressed state of a public professorship, which, in the aggregate of eight years annual courses of lectures, has yielded a sum falling far short of the proceeds of a private class of sixty students, to a single, unassociated professor, during four months of the past winter.* These facts have found their way into this communication,

has he ever separated it from that duty. He neither requires nor receives private or extra compensation, for exercising the students in their proficiency, by recapitulatory queries.

* \$600, the fee (private) being \$10. For this sum the students were met once a week during the session, and instructed by the professor alone, by recapitulatory interrogatories. The session consists of seventeen weeks; the private course of this gentleman, therefore, consisted of *as many hours*. Consequently, this professor received upwards of \$35 an hour, over and above the *public proceeds* of his lectures, which are not, it will be conceded, by any means *trifling*.

The gentlemen employed by the professor of the practice, in his private supernumerary class, are, as I have already stated, six in number. Their engagements with this private class are as follow, designating the gentlemen employed by numbers from 1 to 6. No. 1, at 7 o'clock, P. M. Tuesday; No. 2, at 4½, Mondays, Tuesdays and Wednesdays; No. 3, at 4½, Thursdays; No. 4, at 4½, Fridays; No. 5, at 4½ Saturdays, and 8 P. M. Wednesdays; No. 6, at 3½, Saturdays. 7, The professor himself, Dr. Chapman, another hour in the week, (hour not known.) The professor of surgery's private and supernumerary class have an engagement with him, at 3 o'clock on Saturdays. The private class of the professor of chemistry have engagements with him from 9 to 10 o'clock A. M. Saturdays, during the first half of the session, ending a little after Christmas, and the residue of the session from 9 to 10 o'clock, A. M. Wednesdays. With all these *distracting*, supernumerary engagements, *which have nothing to do with the school*, on their hands, superadded to the regular, required, and indispensable engagements of the students with the professors, in their public duties, during the short period of four months, can you any longer wonder at "the complete devotion of time, even of hours usually appropriated to rest, of our students during the winter?" The amazement naturally excited at this representation, is not at the consumption of time and loss of sleep, but at the existence of the causes tending so largely and pitilessly to produce so much serious loss of time and health. Do your regulations impose this consumption of time, this trespass on quietude and sleep? No. Are the students benefitted? can the students be benefitted by this system, in any degree commensurate with the heavy and inevitable but unnecessary expenses it brings with it, and the deprivation of necessary rest it so liberally contributes to effect? Let their purses, their health, and their real interests of education, after circumstances have severed these interests from the idea they daily express

simply because the interests and merits of a public appeal have been virtually approached by the effects growing out of a system purely of private aggrandizement.

14th. The second objection urged by the Faculty to the winter season, is, "the impracticability of obtaining living specimens of plants during the winter." To this I would remark simply, that, as a teacher of Botany, who has delivered two courses on it in the winter season, and as one who would not be willing to risk his reputation by seeking to lecture at a season which would deprive him of the subjects of his course, and consequently of the means of sustaining his reputation, I ought to be presumed to know, whether I could obtain the necessary living specimens at that season; and I declare that it is not only quite possible for a reasonable expense to obtain them from the neighbouring green houses which are supported by the sale of plants, but that it is quite easy to do so. And further, if you should extend the patronage to the chair, which I am soliciting, the pecuniary proceeds of it would enable me to erect and support a green house of my own for this purpose, which would cost no more than the apparatus and perpetual purchase of materials for the chemical chair—all which is done at the private cost of the professor himself. To this I may add, that it is known to my classes, that I have constantly been in the habit of aiding instruction by living plants, even in the summer, by the use of numerous pictures on an enlarged scale, to explain what is obscure in real vegetation. This method, and that by large transparencies, is now adopted universally in Europe, as the most instructive and efficient to the students. No objection therefore does exist, either in point of time (setting aside the consumption of it for private purposes by several of the professors) nor in point of living subjects for the lectures, to the winter season. I have further declared to your committee on this subject, my willingness to deliver two courses in the year, one in the winter, and the other in the spring or summer,

of its propitiatory influence, answer. But is it quite fair to urge this private consumption of time, for private purposes and private thrift, to you in your public capacity, against the expediency of admitting a public professorship, claimed to be elevated for the public good?

The number of these classes must now be noticed. The private class of the professor of the practice consisted, during the past winter, of between 80 and 100 students; his private fee is \$30.

The private class of the professor of surgery consisted of 60 students; his private fee is \$10.

The private class of the professor of chemistry consisted the past session of about 80; his private fee is \$5.

A single student who takes *all* these supernumerary tickets, is thus put to the expense of \$45, for four months, in addition to the aggregate amount of all the public tickets; and I am informed, that about 60 or 70 of the present class of graduates took *all* these supernumerary tickets the past session—a state of things which occurs every year, as is known to the whole medical profession of this city. All this information I have received from numbers of the graduates of this session *themselves*. Yet a want of funds on the part of the students, is urged by the faculty against introducing botany, as necessary to a degree !!! These private classes are recommenced in the spring, and continued during the summer at much higher fees. But as their effects have not been urged to you by the faculty, against the success of my public appeal, I have neither inclination nor motive to offer any remarks on the subject.

to accommodate all the students. And it has been shown that in Leipsic this is done by the professors of Botany.

15th. It now only remains for me to notice the objection urged by the Faculty to the expediency of the contemplated measure arising from a consideration of the number of medical schools rising up in the United States, a state of things which they believe renders "the present moment unpropitious in the extreme for augmenting the demands upon the students by making an additional chair of equivocal utility, essential to a degree." In the first place, I refer you to my address of January 2d, for my reasons why I think this rivalry is conclusive in favour of my views; and I trust, that the *facts* stated in this communication and in my memorial and address, prove satisfactorily that the chair is of *unequivocal utility*. And, secondly, respecting any demands, which it may, if rendered necessary to a degree, make on the funds of the students, I do believe the freedom with which they are found, as already mentioned to give (no matter from what motive) large private fees to the professors, amounting often in one year to an individual student to more than two-thirds the entire amount of a full course of the different public lectures, will be viewed by you as undeniable proof that most of them have funds to spare, a part of which might advantageously be devoted to the acquirement of an additional important branch of medicine, although it might prevent some few from taking as many *private tickets*, as, without the arrangement contemplated, they would otherwise have it in their power to afford.

It is stated that "whilst it remains optional with the students to attend Botany, they will be satisfied." I have by the schedule of the proceeds of eight courses of lectures appended to my address of January 2d, delivered on Botany, under your auspices, proved, that while it is merely optional to attend, the professorship is wholly *nominal*, and the professor and his subject in reference to the school, undervalued in their estimation; to which may be added, that the well known current sentiments against the subject entertained by the Faculty as expressed in their communication to you, certainly confirm this state of non-entity. That this must be the effective operation of the doctrine of non-connexion of Botany with medicine, and its being a science of mere classification,* on the uninformed minds of students, will readily occur to you. And that the Faculty does uphold this non-connexion, their whole communication evidences. In the close of it they embody this idea in a tangible form, stating that they have

* I am not singular in denying in this circular, (page 2.) the correctness of the Faculty's position on the subject of the science being merely restricted to the classification of plants, and having no connexion with medicine. Among many authors on this subject, I quote the following remarks, as bearing with particular force on this idea. "Botany, as a science, is *not confined* to the description and classification of plants, as ignorance has often been pleased to represent it; but comprehends many other important particulars. Its various objects may be conveniently arranged under the following heads."* Here the writer enumerates eight distinct objects of this science, of which "mere classification" is only one; and the seventh head comprises "the purposes to which different plants are applied, either as articles of food, *ingredients in the composition of medicine*," &c.†

* Article Botany, (supposed by the celebrated Dr. Smith of England, author of the elements of Botany, Lecturer, &c. on Botany, &c.) Rees' Cyclopaedia. † Ibid. same article.

“endeavoured to prove that this science has no legitimate connexion with medicine; yet in the very same document they at another time palpably acknowledge this connexion by urging as an objection to its introduction into the medical faculty, that the professor would, (by teaching the subject after the manner in which I have stated, is not only the correct way but the method pursued in medical schools of Europe,) encroach on the chairs of *Materia Medica* and Pharmacy and the Practice of Physic! One or the other of their positions must be incorrect. Indeed the objection on this score involves so plainly the idea of the intimate and close connexion of Botany with the science of medicine, that it is surprising the inference which you, as well as a medical man, can draw from it, in favour of the introduction of Botany to the courses of instruction, should have escaped them.

This idea of the non-connexion of botany with medicine is most extraordinary and indefensible. I have shown already the grounds on which such an idea must be deemed untenable. But to bring the subject more forcibly to your mind, permit me to state some additional facts which bear on the subject. The authors who have written on Peruvian Barks are 202 in number; on Camphor 136; on Opium 112; on Rhubarb 95; on Ipecacuanha 81; on Jalap 72. Of these writers, the majority are botanists, who have written on these vegetable medicines, not only botanically, but *by detailing their medicinal properties and uses*. I have purposely exemplified the bearing of botany on medicine, by the above facts relating to articles familiar to every body. But the chain of connexion between *all* the articles of vegetable *materia medica* and botany, is equally demonstrable. The vegetable dietetics, moreover, are the legitimate objects of botany; and that this subject is important and intimately connected with medical instruction, must occur to you. So necessary is it considered to the physician, that “dietetics” is of itself a branch of a professorship in Edinburgh. Vegetable Toxicology is another important branch of botany. It is the study of the plants possessing poisonous qualities. That a physician should be possessed of a knowledge of these, you will readily admit to be important; and I hazard nothing which can be denied, when I assert that vegetable toxicology without botany is impracticable of attainment—is a *non-entity*. For the objects of this subject no provision whatever is made in this university. It is not and cannot be taught legitimately in any chair now requisite for a degree. Botany once requisite, it would be provided for. I have shown, notwithstanding the Faculty declare that the *Materia Medica* embraces only 500 vegetable medicines, that Stokes’ Botanical *Materia Medica*, including dietetics, embraces 2626* un-compounded articles. Of this number, at least 1300 are strictly medicinal. The whole, extending to vegetable dietetics and toxicology, is therefore sufficiently copious “on which to found a distinct professorship.” Finally, the non-connexion of botany and medicine does not and cannot exist, from the very nature of the sciences. On the contrary, the intimate connexion of these sciences is proved.

If, therefore, your candid and serious consideration of all the facts

* “A Botanical *Materia Medica*, consisting of the generic and specific names of the plants used in medicine and diet. By Jonathan Stokes, M. D.” Four large 8vo volumes, London, 1812.

and information which I have placed before you, should decide you that a knowledge of botany is important to a physician; the necessity of some new regulation on the subject will, I trust, suggest itself to you as proper, and loudly called for by the nature of the case; and induce you to render an attendance on the lectures imperative, here, as it is in every other medical school of importance in the world.

To conclude: I have endeavoured, in the foregoing remarks, to canvass dispassionately a matter of opinion on a scientific subject, existing in discrepancy, not only between the Medical Faculty and myself, but between that Faculty and the Medical Faculties of all the colleges of Europe, several of our own country, and the predominant mass of the medical profession of this union. I have done this, I trust, in a manner becoming the dignity of the subject, and that respectful consideration for the gentlemen, whose opinions I have sought, by facts alone, to explode, which their high station required. Having represented to your board, that the subject of the professorship of botany was more important to the community than you have heretofore supposed, or been led to believe, it became a duty I owed myself, as well as you, to sustain my representations, by facts of history and record, no matter how closely soever those facts might press on the validity of representations of a contrary tendency, made to you by the Medical Faculty or any other body. Of the strength and merits of the case, viewed by you in all its aspects, you will certainly not be the less prepared to decide, in consequence of the door to information having been completely thrown open.

I have the honour to be, Sir,

Very respectfully,

Your obedient servant,

Philadelphia, April 1, 1825.

WILLIAM P. C. BARTON.

P. S. I have been desirous of laying before you, all the information which could be procured on the subject of Botany, as a requisite branch for a medical degree in Europe, and on the point of its connexion with, and usefulness to, medicine. Influenced by this desire, I addressed a letter a short time ago to Dr. Robley Dunglison,* who arrived from England in this country, about five weeks since. This gentleman has been invited to this country, in consequence of the high estimation in which his talents and learning are held, by Mr. Jefferson and Mr. Maddison, the founders and principal directors of the University of Virginia. While pursuing his profession in London, where he was distinguished for his professional abilities, he was appointed six months ago, Professor of the institutes and practice of medicine in the University of Virginia, a chair he has now repaired to this country to occupy. The reply of Dr. Dunglison to my queries, has this moment been received, and I now lay his letter before you, believing it will be deemed interesting to the merits of the case pending, not only because of the high respectability of the source itself, but because of the proof it affords of the state of Botany in foreign schools, at this moment.

* Robley Dunglison, M. D. late Lecturer on Midwifery and the Diseases of Women and Children, Consulting Accoucheur to the Eastern Dispensary of London, one of the editors of the London Medical Repository, author of Commentaries on the Diseases of the Stomach and Bowels of Children, &c. and now Professor of the Institutes and Practice of Medicine in the University of Virginia.

University of Virginia, March 25, 1825.

SIR—"I hasten to reply to your letter, dated the 22d inst. which I did not receive until yesterday, and although I am unable to afford you information on all the topics contained in your communication—I trust that what I may be able to offer may be of some service.

"In answer to your queries:—

"1. Botany is taught as a separate branch of medical education, in the principal medical schools in Britain.

"2. One course, *at least*, is necessary to the candidate for a degree in the University of Edinburgh. The fee of each course, so far as I recollect, is four guineas.

"3. Dr. Graham was translated to Edinburgh after the death of Dr. Rutherford.

"4. Botany is likewise a separate branch in the University of Glasgow, and subjected, I believe, to the same regulations as in Edinburgh. The fee, number of courses required, and time of year at which they are delivered, being, to the best of my recollection, the same. The present Regius Professor of Botany in that University is Jackson Hooker, L. L. D. F. R. S. &c.

"The very institution of a Botanical Professorship is a sufficient proof of the estimation, as a part of Medical Education, in which it is held by the Directors of that University.

5. With respect to the University of Dublin, there, as in every well adapted school for Medical Instruction, it forms part of the required studies.

"6. As regards my own opinion on the importance of Botany, in connexion with Medicine, and of its necessity to complete the Education of the Physician, I can have no hesitation in declaring that I consider it *highly necessary*, ESPECIALLY IN THIS COUNTRY. In the larger towns of Britain, and in those of the European Continent, especially of France, where the Medical Profession is divided as in the former, into *Physician, Surgeon and Apothecary*, and further, into *Druggist and Herbalist*, and in the latter into *Docteur en Medecine, Docteur en Chirurgie, Pharmacien, Droguiste and Herboriste*, the resident practitioners do not so much require a knowledge of even the indigenous plants, and those who reside in the distant parts of the kingdom, from the free communication which exists between them and the larger towns can receive a ready supply. But, in this country, where those facilities are not so great, and where the Physician must frequently from his remote situation, be compelled to depend upon those resources which are within his immediate reach, a knowledge of Botany, especially as regards the indigenous plants, I consider as one of the most valuable acquirements of which he could be possessed. The Court of Examiners of the Society of Apothecaries, of London, instituted according to the provision of the act of 1815, for the better regulating of the practice of Apothecaries in England and Wales, had appointed Botany as an essential requisite in the education of the Apothecary, who, as you may be aware of, is the *family physician* in those countries; the real physician being generally called in only in consultation, &c.

ROBLEY DUNGLISON.

DR. BARTON.